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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/579,798

05/18/2006

Hiroshi Yaguchi

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7590

12/10/2008

OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C.
1940 DUKE STREET
ALEXANDRIA, VA 22314

EXAMINER

FOGARTY, CAITLIN ANNE

ART UNIT

PAPER NUMBER

1793

NOTIFICATION DATE

DELIVERY MODE

12/10/2008

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@oblon.com
oblonpat@oblon.com
jgardner@oblon.com

Office Action Summary	Application No.	Applicant(s)	
	10/579,798	YAGUCHI ET AL.	
	Examiner	Art Unit	
	CAITLIN FOGARTY	1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 September 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 May 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>8/27/2008</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Status of Claims

1. Claims 1 – 20 are pending where claims 1 – 16 have been amended.

Status of Previous Rejections

2. The 35 U.S.C. 103(a) rejection of claims 1 – 4, 6 – 9, 13 – 15, and 17 – 20 as being unpatentable over JP 2003-253390 has been maintained.

The 35 U.S.C. 103(a) rejection of claims 1 – 5, 7 – 12, and 17 – 20 as being unpatentable over JP 2001-207240 has been maintained.

The 35 U.S.C. 103(a) rejection of claim 16 as being unpatentable over JP 2001-207240 in view of JP 2003-253390 has been maintained.

Priority

3. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

4. The information disclosure statement (IDS) was submitted on August 27, 2008. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Claim Rejections - 35 USC § 103

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

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6. Claims 1 – 4, 6 – 9, 13 – 15, and 17 – 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over the English machine translation of JP 2003-253390 from the IDS (hereafter JP '390).

The previous rejections of claims 1 – 4, 6 – 9, 13 – 15, and 17 – 20 still apply to the amended instant claims 1 -4, 6 – 9, and 13 – 15. Therefore, JP '390 is applied to instant claims 1 – 4, 6 – 9, 13 – 15, and 17 – 20 as set forth in the June 27, 2008 Office action.

7. Claims 1 – 5, 7 – 12, and 17 – 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over the English machine translation of JP 2001-207240 from the IDS (hereafter JP '240).

The previous rejections of claims 1 – 5, 7 – 12, and 17 – 20 still apply to the amended instant claims 1 – 5 and 7 – 12. Therefore, JP '240 is applied to instant claims 1 – 5, 7 – 12, and 17 – 20 as set forth in the June 27, 2008 Office action.

8. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over the English machine translation of JP 2001-207240 from the IDs (JP '240) as applied to claims 1 and 5 above, and further in view of the English machine translation of JP 2003-253390 from the IDS (JP '390).

The previous rejection of claim 16 still applies to the amended instant claim 16. Therefore, JP '240 in view of JP '390 is applied to instant claim 16 as set forth in the June 27, 2008 Office action.

Response to Arguments

9. Applicant's arguments filed September 5, 2008 have been fully considered but they are not persuasive.

Arguments are summarized as follows:

- a. With respect to claim 1, at minimum, nothing in the applied art would lead one skilled in the art to the required $Mn \cdot S$ or Mn/S values. Nothing in the applied art recognizes these values as being result effective, meaning that one skilled in the art would not be motivated to optimize these values.
- b. With respect to claim 2, at minimum, nothing in the applied art would lead one skilled in the art to the required deformation resistance properties, properties which reflect an improved steel product.
- c. With respect to claims 3 and 7, at minimum, nothing in the applied art would lead one skilled in the art to the required dissolved nitrogen values. Nothing in the applied art recognizes these dissolved nitrogen values as being result effective, meaning that one skilled in the art would not be motivated to optimize these values.
- d. With respect to claims 6 and 13-16, at minimum, nothing in the applied art would lead one skilled in the art to the required Of concentrations and Of/S ratios prior to casting, which are significant characteristics of the present invention. Nothing in the applied art recognizes these values prior to casting as being result effective, meaning that one skilled in the art would not be motivated to optimize these values at that particular time in the production process.

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Examiner's responses are as follows:

- a. Although neither JP '390 nor JP '240 specifically teaches that the contents of Mn and S satisfy the recited formulas in instant claim 1, the Examiner maintains the position that it is well settled that there is no invention in the discovery of a general formula if it covers a composition described in the prior art. Furthermore, in the absence of evidence to the contrary, the selection of the proportions of elements would appear to require no more than routine investigation by those ordinary skilled in the art. Applicant has not submitted factual evidence to show the criticality of a minimum of 0.40 Mn*S (i.e. compared to 0.39 Mn*S) and a maximum of 1.2 Mn*S (i.e. compared to 1.21 Mn*S) or the criticality of at least Mn/S of 3.0 (i.e. compared to Mn/S of 2.9).
- b. Applicant has not submitted factual evidence to show that the steel product of JP '390 or JP '240 would not inherently have a difference in deformation resistance at a strain of 0.3 between 200°C and 25°C that is 110 MPa or more and 200MPa or less, the deformation resistances being determined at a deformation rate of 0.3 mm/min in a compression test. Therefore, the Examiner maintains the position that since a similar process is used to make the free machining steel of JP '390 and the steel product of JP '240, it would be expected that the steel products of JP '390 and JP '240 would have the same deformation resistance.
- c. Applicant has not submitted factual evidence to show that the steel product of JP '390 or JP '240 would not have an overlapping amount of dissolved

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nitrogen. Therefore, the Examiner maintains the position that since the composition of nitrogen in the steel of JP '390 overlaps with that of the instant invention and a similar process is used to make each steel, it would be expected that the steel of JP '390 would contain an overlapping amount of dissolved nitrogen with the steel of the instant invention. Furthermore, [0018] of JP '240 teaches that the steel product comprises 0.01 mass% or less dissolved nitrogen which is within the range recited in instant claims 3 and 7.

d. JP '390 does not specifically teach that before casting, the free oxygen (Of) is controlled to a content of 30 ppm or more and less than 100 ppm and the ratio Of/S of Of to S is controlled to within a range from 0.005 to 0.030, Of and S being contained in the molten steel before casting. However, in absence of evidence to the contrary, the Examiner maintains the position that since the compositional ranges of S and O in the steel of JP '390 overlap with the compositional ranges of S and O in the instant application, it would be expected that the ratio of free oxygen to sulfur of JP '390 would overlap with that of the instant invention.

Conclusion

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

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mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CAITLIN FOGARTY whose telephone number is (571)270-3589. The examiner can normally be reached on Monday - Friday 8:00 AM - 5:30 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/Roy King/

Supervisory Patent Examiner, Art Unit 1793